

New Storage for Hazelnuts

Barbara M. Reed has a new genetic insurance policy for hazelnuts.

Until now, seeds of hazelnuts, also known as filberts, would not sprout after 6 months to a year in storage or after any exposure to liquid nitrogen.

But working with procedures used to preserve tropical seeds, Reed has developed a technique to keep hazelnuts viable indefinitely.

“If a whole region were wiped out by Eastern filbert blight or another catastrophe, the stored seeds would provide a crucial resource for breeders,” Reed says. “The seeds of nine primary hazelnut species contain the genetic material from which new and better commercial cultivars can be developed.”

Reed is a plant physiologist at the ARS National Clonal Germplasm Repository in Corvallis, Oregon.

Turkey, Italy, Spain, Greece, and the Willamette Valley in Oregon are the world’s prime growing regions. Rich in vitamins B6 and E, hazelnuts are popular roasted and in baked products.

Reed and M.N. Normah, a Malaysian scientist on sabbatical at the ARS repository, discovered that a technique used by Normah to store finicky rubber tree seeds also worked for hazelnuts.

“Although most of the seed dies, we found that the tip of the embryo—the part of the seed that will develop into the plant shoot and roots—stays alive in liquid nitrogen,” Reed says.

The embryo tip, known as the axis, can be cut out of the seed and grown into a plant in tissue culture. Better still, Reed can store just the axes.

“This lets us store hundreds of each species in a small amount of space,” says Reed.

Another advantage: While seeds must be kept in a cool, moist environment for 8 weeks to break their dormancy so they will germinate, axes alone take only 2 weeks. This cuts the time and cost to regrow the plants.

The nine main species of hazelnuts have been bred into over a hundred cultivars, or varieties. Reed and her colleagues propagate these cultivars by cuttings, as trees, or in tissue culture.

Preserving the seeds and plants makes it possible for breeders to develop additional new varieties. Or, if a cultivar or even a whole species were wiped out in the wild, lost genetic traits could be recaptured.—By **Kathryn Barry Stelljes, ARS.**

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